

BUSINESS ANALYSTS USE DATA TO MAKE STRATEGIC BUSINESS DECISIONS

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ABSTRACT

Data, information, knowledge have always played a critical role in business. The amount of various data that can be collected and stored is increasing, therefore companies need new solutions for data processing and analysis. The paper presents considerations on the concept of Big Data. The aim of the paper is to demonstrate that Big Data analytics is an effective support in managing the company. It also indicates the areas and activities where the use of Big Data analytics can bring the greatest benefits to companies. Edge data analytics reduces the volume of data that needs to be sent to the cloud or other available resources for processing. It facilitates with avoidance of an additional processing state via autonomous behaviors of the machine, increased security, and minimized costs of data transmission. This paper investigates the role of data management, data analytics and business intelligence in process management and process improvement. The findings suggest how the terms are inter-related. The paper gives detail explanation of the methodologies used in past, tools and strategies adopted in the present and the future scope of business process management. It also studies the impact of business analytics and business intelligence on supply chain management. The study of Lean and Six Sigma approach towards process improvement is also a part of the paper. data analytics has been successfully used for various business functions, such as accounting, marketing, supply chain, and operations. Currently, along with the recent development in machine learning and computing infrastructure, big data analytics in the supply chain are surging in importance. In light of the great interest and evolving nature of big data analytics in supply chains, this study conducts a systematic review of existing studies in big data analytics. This study presents a framework of a systematic literature review from interdisciplinary perspectives. From the organizational perspective, this study examines the theoretical foundations and research models that explain the sustainability and performances achieved through the use of big data analytics. Then, from the technical perspective, this study analyzes types of big data analytics, techniques, algorithms, and features developed for enhanced supply chain functions. Finally, this study identifies the research gap and suggests future research directions. Edge data analytics reduces the volume of data that needs to be sent to the cloud or other available resources for processing. It facilitates with avoidance of an additional processing state via autonomous behaviors of the machine, increased security, and minimized costs of data transmission. Over the past few decades, with the development of automatic identification, data capture and storage technologies, people generate data much faster and collect data much bigger than ever before in business, science, engineering, education and other areas. Big data has emerged as an important area of study for both practitioners and researchers. It has huge impacts on data-related problems. In this paper, we identify the key issues related to big data analytics and then investigate its applications specifically related to business problems. Technology is improving day by day. It has become tough for the organizations to manage data and keep themselves up to date with the latest technology. It has also led to a competitive situation in the market. In order to stay in the market, industries need to work on the process management and improvement strategy.

Information technology has opened gates for the organizations to automate, improve and change the business process. Since the current focus is on activities and process this demands of Business Process Management Activities to optimize the activities and also to integrate BPM with IT. This paper discusses all the definitions, tools and techniques which greatly impacts the way business functions and also the profit margins.

Edge data analytics reduces the volume of data that needs to be sent to the cloud or other available resources for processing. It facilitates with avoidance of an additional processing state via autonomous behaviors of the machine, increased security, and minimized costs of data transmission. Data analytics happened to be of the highest importance over the collected data to draw any meaningful insights (Donitha, 2017) [1]. In this chapter, we discuss the tools and technologies of edge analytics which is the best choice compared to relying on descriptive analytics, diagnostic analytics, predictive analytics, and prescriptive analytics. data analytics describes the process of uncovering trends, patterns, and correlations in large amounts of raw data to help make data-informed decisions. These processes use familiar statistical analysis techniques—like clustering and regression—and apply them to more extensive datasets with the help of newer tools. Big data has been a buzz word since the early 2000s, when software and hardware capabilities made it possible for organizations to handle large amounts of unstructured data. Since then, new technologies-from Amazon to smartphones—have contributed even more to the substantial amounts of data available to organizations. With the explosion of data, early innovation projects like Hadoop, Spark, and NoSQL databases were created for the storage and processing of big data. This field continues to evolve as data engineers look for ways to integrate the vast amounts of complex information created by sensors, networks, transactions, smart devices, web usage, and more. Even now, big data analytics methods are being used with emerging technologies, like machine learning, to discover and scale more complex insights.

Searches of the Web using Google, and database searches of the academic and practitioner literature, return a large number of differing and varied definitions of the concept of business analytics. This article reviews the growing literature on Business Analytics (BA) using traditional and qualitative research tools. Our searches included using Google Search to identify examples of business analytics applications, and a focused keyword search of the available practitioner and academic literatures. Text analytics techniques identified frequently used terms in prior definitions of business analytics. Our empirical, inductive approach provides a basis for proposing and explaining a formal sentence definition for Business Analytics. The analysis provides a starting point for operationalising a measure for the business analytics construct. Additionally, understanding business analytics can help managers assess skill deficiencies and evaluate claims about relevance of tools and techniques. Finally, carefully defining the Business Analytics concept should provide stimulus for new research ideas.

KEYWORDS: Business Analysis, Requirements Analysis, Business Requirements, Agile Methodologies

INTRODUCTION

Over the past decade, the "Big Data" era has quietly descended on many communities, from governments and e-commerce to health and sports organizations. These data are generated from the Web, online transactions, emails, videos, audios, images, click streams, logs, posts, search queries, health records, social media, science data, sensors and mobile phones and their applications. Within the next decade, the amount of information will increase by 50 times while the number of information technology specialists who keep up with all that data will increase by 1,5 times. Information overload is one

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of the most serious problems in the Big Data environment. For information users, searching for what they need from the vast amounts of information accurately is becoming more difficult. However, if companies are able to collect, process and analyse large datasets, then gathered information can be extremely valuable. In the era of exponential growth of business information, the acceleration of data accessibility is becoming vital. Enterprise database systems, search systems, advanced data, text and Web analytics are becoming important for turning data into actionable knowledge and intelligence. As the data volume is large, the analytics can only be possible if we have highly efficient algorithms and software. Highly skilled executives in terms of gathering and using knowledge, who also have analytical skills, are nowadays among most competitive factors of the company. In the turbulently changing environment, making a decision is associated with a high risk, which may hinder the access to relevant information and reliable analysis, delivered when you need them. Advanced analytical tools, supported by innovative ways of processing Big Data become necessary to expand enterprises. Research of Brynjolfsson, Hitt and Kim confirmed that the efficiency is higher in organisations which base their decisions on data and analytics systems. This is facilitated by basing decision-making process on data obtained from analytical systems what is referred to as "data-driven decision-making approach (DDD)". The purpose of this paper is to demonstrate that Big Data analytics is an effective support in the management of business. The following sections present the essence of Big Data, traditional data analysis vs. Big Data analytics methods as well as the role of Big Data analytics in the management of business. The results of empirical research about priorities for the application of Big Data are also presented.

4. LITERATURE REVIEW

A literature review surveys books, scholarly articles, and any other sources relevant to a particular issue, area of research, or theory, and by so doing, provides a description, summary, and critical evaluation of these works in relation to the research problem being investigated. Data analytics is the science of analyzing raw data to make conclusions about that information. Data analytics help a business optimize its performance, perform more efficiently, maximize profit, or make more strategically-guided decisions. Among other methods, literature reviews are essential for: (a) identifying what has been written on a subject or topic; (b) determining the extent to which a specific research area reveals any interpretable trends or patterns; (c) aggregating empirical findings related to a narrow research question to support evidence.

- Narrow your topic and select papers accordingly.
- Search for literature.
- Read the selected articles thoroughly and evaluate them.
- Organize the selected papers by looking for patterns and by developing subtopics.
- Develop a thesis or purpose statement.
- Write the paper.
- Review your work

Research by Yi et al. (2014) identifies the components of the network that must be established, such as an original data network, the bridges used for connecting and transmitting to data centres, and at least one data centre. Another study (H. Eszter, 2015) highlighted the issues in using big data through specific locations and showed that the users could not select data through the data network. For storage models, the most important challenge is how to deal with the sheer

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amount of data, as ultra-scalable solutions can block the processing of certain data sources, causing inefficiency. Building more scalable big data technology is a challenge, and any new technology must offer data gathering and distribution among nodes spread through the world (Lv et al., 2017). Structured data storage and retrieval methods include "relational databases, data marts, and data warehouses" (Elgendy, N. and Elragal, A., 2014). Data is extracted from outside sources, then transformed to fit operational needs, and finally loaded into the database. The data is then uploaded from the operational data store to longer-term storage using Extract, Transform, Load (ETL) or Extract, Load, Transform (ELT) tools. The data is then cleaned, transformed, and catalogued before use (Bakshi, 2012; Elgendy and Elragal, 2014).

3. OBJECTIVE OF THE STUDY

The chief aim of data analytics is to apply statistical analysis and technologies on data to find trends and solve problems. Data analytics has become increasingly important in the enterprise as a means for analyzing and shaping business processes and improving decision-making and business results. In a broad sense, the objective of business data analytics is to explore and investigate business problems or opportunities through a course of scientific inquiry. The specific objectives of business data analytics are dependent on the type of analysis that is being performed. The primary aim of data research and analysis is to derive ultimate insights that are unbiased. Any mistake in or keeping a biased mind to collect data, selecting an analysis method, or choosing audience sample il to draw a biased inference. The definition of SMART goals lies in the acronym itself: specific, measurable, achievable, relevant, time-bound. It's about formulating goals that meet the named criteria, though certain areas may change depending on the nature of your project. Data are needed to make rational decisions, evaluate the fisheries performance in relation to management objectives and fulfil regional requirements. The extent to which objectives are achieved is assessed using indicators, which are generated from data. Normally at least two or three research objectives will be stated. It is good practice to put these in a numbered list so they can be clearly identified later in a proposal or report.

The goal of data management is to help people, organizations, and connected things optimize the use of data within the bounds of policy and regulation so that they can make decisions and take actions that maximize the benefit to the organization.

Here are the key Objectives That are Emphasized during the Course

- 1. Data extraction: Investigate data to establish new relationships and patterns
- 2. Predictive Analytic and Predictive Modeling: Analyze the correlation between different variables
- 3. Logistic Regression: Analyze the possibility of default and generate customer records
- 4. Problem analysis: Understand and explore problems in business
- 5. Data interpretation: Use tools such as Excel and open source to interpret data
- 6. Problem-solving: Use analytics to solve business problems

RESEARCH GAP

A data gap analysis is a process of identifying and addressing the discrepancies between the current state and the desired state of your data.

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Here is an example of a research gap statement: Although many studies have examined the effects of social media on mental health, there is a lack of research on how different types of social media platforms influence different aspects of well-being.

There are seven types of research gaps, namely: evidence gap, knowledge gap, practical-knowledge gap, methodology gap, empirical gap, theoretical gap, and population gap.

In essence, the data is there; the problem is that you need employees who have the skills to leverage that data and use relevant tools to get it done efficiently. This skill gap applies to everyone within an organization. All roles are changing to have basic data literacy requirements, even if you've never previously worked with data. And for those who do regularly work with data, there's a growing need to stay up to date on tools and techniques as the field evolves.

4. CHALLENGES IN BUSINESS ANALYSTS USE DATA TO MAKE STRATEGIC BUSINESS DECISIONS

For some technically capable people, business analysis is difficult because they lack business strategy skills. You need a blend of skills to succeed in business analytics. Your real-world challenge after college is to learn how to use analytics for decision making. Analyzing and creating meaningful reports becomes increasingly difficult as the data pile up. This can be challenging even with analytics software, especially if the solution is not scalable. Some examples of limitations include a limited sample size or lack of reliable data such as self-reported data, missing data, and deficiencies in data measurements (such as a questionnaire item not asked that could have been used to address a specific issue). With the rapidly increasing data volume, businesses face the challenge of scaling data analysis. Analyzing and creating meaningful reports becomes increasingly difficult as the data pile up.

This can be challenging even with analytics software, especially if the solution is not scalable. That's why it's important to consult before acquiring a tool to ensure it's scalable and supports efficient data analysis as your business grows.

In health care sector employee welfare plays an important role. Employers need to provide services to employees who are occupied with the patient's care and hospital maintenance & services because employees of the healthcare sectors are locked in with most troublesome errand i.e. treating and getting them busy in saving the human life, for which they require giving full attention towards their work. In this state of affairs, it is required to have stress free, motivated workplace.

5. RESEARCH METHODOLOGY

- DATA COLLECTION SOURCES:- The purpose of methodology section is to descriptive researcher of the current study.
- **Primary data** collected by employees and questionnaires provided to the 100 employees of spectrum dyes and chemicals pvt ltd.
- Secondary data will be collected through research papers ,magazines ,newspapers ,articles and etc.

- **SAMPLE DESIGN:** A sample design is the framework to distribute as the basis for the selection of a survey sample and affects many other important aspects of a survey as well.
- Sample Element: Customer of Varanasi City.
- Sample size: 200 samples
- Sampling methods: judgmental sampling.

HYPOTHESES

- Hypothesis 1 (H1). Managers integrate selling biodegradable or recycled or refurbished products to impact on price differentiation and diversity, market position (being known in a particular way), company's image, market leadership, offer quality or company's growth.
- Hypothesis 2 (H2). Managers integrate selling environmentally friendly brands to impact on price differentiation and diversity, market position (being known in a particular way), company's image, market leadership, offer quality or company's growth.
- Hypothesis 3 (H3). Managers integrate being proactively involved in environmental community activities to impact on price differentiation and diversity, market position (being known in a particular way), company's image, market leadership, offer quality or company's growth.
- Hypothesis 4 (H4). Managers integrate being assertive about environment and communicating the endeavors to impact on price differentiation and diversity, market position (being known in a particular way), company's image, market leadership, offer quality or company's growth.
- Hypothesis 5 (H5). Managers integrate donating money and/or allocating time for environmental purposes to impact on price differentiation and diversity, market position (being known in a particular way), company's image, market leadership, offer quality or company's growth.

6. SWOT ANALYSIS

A SWOT analysis is one of the methods that is used to evaluate strength (S), weakness (W), opportunities (O) and threats (T) involved in innovative ideas and strategies. It can be applied to products, services and strategies. SWOT Analysis. SWOT means Strengths, Weaknesses, Opportunities, and Threats. It's a method for finding, analyzing, and documenting your company's internal strengths and weaknesses within your control and external opportunities and threats that can affect the realization of your marketing objective. In Disruptions in brand management, a SWOT analysis can help you create hiring and other strategies to achieve short-term Disruptions in brand management goals – like building a more engaged, efficient, and productive workforce. It can also help with your long-term goals – like building a top-tier workforce or becoming an employer of choice.

Types of Data Analytics

Data analytics is broken down into four basic types.

- 1. **Descriptive analytics:** This describes what has happened over a given period of time. Have the number of views gone up? Are sales stronger this month than last?
- 2. **Diagnostic analytics:** This focuses more on why something happened. This involves more diverse data inputs and a bit of hypothesizing. Did the weather affect beer sales? Did that latest marketing campaign impact sales?
- 3. **Predictive analytics:** This moves to what is likely going to happen in the near term. What happened to sales the last time we had a hot summer? How many weather models predict a hot summer this year?
- 4. **Prescriptive analytics:** This suggests a course of action. If the likelihood of a hot summer is measured as an average of these five weather models is above 58%, we should add an evening shift to the brewery and rent an additional tank to increase output

Data Analytics Techniques

There are several different analytical methods and techniques data analysts can use to process data and extract information. Some of the most popular methods are listed below.

- **Regression Analysis** entails analyzing the relationship between dependent variables to determine how a change in one may affect the change in another.
- Factor Analysis entails taking a large data set and shrinking it to a smaller data set. The goal of this maneuver is to attempt to discover hidden trends that would otherwise have been more difficult to see.
- Cohort Analysis is the process of breaking a data set into groups of similar data, often broken into a customer demographic. This allows data analysts and other users of data analytics to further dive into the numbers relating to a specific subset of data.
- Monte Carlo Simulations model the probability of different outcomes happening. Often used for risk mitigation and loss prevention, these simulations incorporate multiple values and variables and often have greater forecasting capabilities than other data analytics approaches.
- Time Series Analysis tracks data over time and solidifies the relationship between the value of a data point and the occurrence of the data point. This data analysis technique is usually used to spot cyclical trends or to project financial forecasts.

7. DEMOGRAPHIC DETAILS (TABLES/CHARTS/GRAPHS

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8. RESULTS & DISCUSSIONS

Data analysis is the most crucial part of any research. Data analysis summarizes collected data. It involves the interpretation of data gathered through the use of analytical and logical reasoning to determine patterns, relationships or trends. Business analytics use historical evidence in models. Evidence based decisions rely on previous performance to determine future decisions. These would result from using business analytics. In the results section of your academic paper, you present what you found when you conducted your analyses, whereas in your discussion section you explain what your results mean and connect them to prior research studies.

Data analysis involves processing and analyzing the data to derive meaningful insights, while data interpretation involves making sense of the insights and drawing conclusions. Data presentation involves presenting the data in a clear and concise way to communicate the research findings.

Data analysis includes the inspection, modification, modeling, and transforming of data as per the need of the research topic. The conclusion is the final inference drawn from the data analysis, review of literature, and findings. Enterprises can use data analytics to guide business decisions and minimize financial losses. Predictive analytics can suggest what could happen in response to changes to the business, and prescriptive analytics can indicate how the business should react to these changes.

Data Analysis is the process of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data.

Don't Undermine Your Research: the Discussion of Limitations Should aim to Strengthen your Credibility, not Emphasise Weaknesses or Failures.

- 1. Step 1: Summarise your key findings.
- 2. Step 2: Give your interpretations.
- 3. Step 3: Discuss the implications.
- 4. Step 4: Acknowledge the limitations.
- 5. Step 5: Share your recommendations

9. CONCLUSIONS

The practical usefulness of Big Data analytics is evident in many areas of company management, especially in strategic management and stakeholders management. Big Data analytics can lead to more effective marketing, new revenue opportunities, improved operational efficiency, competitive advantages over rival organisations and other business benefits. As a conclusion, a list of recommendations for companies that wish to implement Big Data solutions is presented below:

- Verify company's information strategy in terms of Big Data requirements, which include hardware platform, software, application landscape of Big Data analytics and human resources - "data science" and "data analyst" specialists.
- 2. Adjust the "new" information strategy to the business strategy and the business strategies to new business processes opportunities.
- 3. Create flexible business models.
- 4. Build information culture in the organisation. The first question a data- driven organisation asks itself is not "What do we think?" But "What do we known?"
- 5. Change the decision-making model. Data-driven decisions tend to be better decisions.

- 6. Collect, process and use data which already exist in the information resources of the company. 7. Identify other data that should be collected.
- 7. Identify new sources of data.
- 8. Use Big Data analyses in real time, because with time some data cease to be useful. In the era of Big Data and new, more advanced analytical capabilities, companies can gain a competitive advantage on the market, by competing on analytics. The analysis is a part of the increasingly exposed current studies on decision-making on the basis of data.

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